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Leading Articles

NOTES ON PARTURIENT PARESIS.

H. A. Smith, V. M. D., Chicago, Ill.

(Articles written by Dr. M. H. McKillup and by Dr. A. J. Dammon form the basis for this article.)

Parturient paresis is an affection confined entirely to the bovine family. It is well known that the disease affects the heavy milkers especially and always at the time of greatest milk production.

"In cases occurring prior to parturition we invariably find that there is a premature activity of the mammary gland." This activity would therefore appear to be a principal factor in its causation.

Parturient paresis rarely follows a dystokia for the reasons that, first, there has been an arrest of the normal processes, and, second, that as a result of the manipulation in the delivery a revulstant ecect is established in consequence of which the lacteal functions are delayed for several days and disturbances which otherwise would have supervened are obviated.

"In all cases we find a suppression of milk as the earliest symptom manifested." The suppression is explained by the fact that the

gland has reached the stage of active hyperemia, a condition which we may recognize as an important factor in the causation of the disturbance which soon follows.

"Post mortem investigations reveal a hyperemic condition of the generative tract and especially of the mammary glands. On the other hand an anemia of the anterior portion of the body and particularly the brain, is invariably in evidence." In view of the above facts and also of recent discoveries we cannot do otherwise than conclude that the most rational theory is that of a circulatory disturbance and that the disease in question resolves itself into a condition which may be rightly termed physiological exaggeration.

"The principal factors in its etiology are, first, the sudden withdrawal of the fetal blood supply; second, the demands of nature in the lower abdomen and pelvic region following delivery; and, third, the enormous volume of blood deviated from the general circulation by the mammary glands. The final result of this combined effect of these factors occurring at the same time and in the same direction determines the ultimate depletion of the anterior extremity of the body and especially of the brain, a condition which is indicatd by paresis and general functional disturbances."

"In the treatment of this disease in the past it was noticed that phlebotomy increased the mortality and that cathartics were equally fatal."

Finally distension of the udder was worked up to as a result of many experiments with medicinal agents, disinfectants, water, oxygen and finally with air.

The following cases are from the records of A. J. Dammon, Post Graduate of the McKillup Veterinary College, and at present Assistant State Veterinarian of Washington.

Case No. 1.—February 11, 1906. Brown Jersey cow; age 5 years; very fat, and an extremely heavy milker.

History.—No history of a previous attack. Third calf, symptoms of parturient paresis appeared about six hours after calving. Had been milked out three hours before attack. Parturition normal. Had had no treatment.

Examination.—Cow in full lateral recumbent decubitus. Complete paralysis. Tongue protruding and stertor. Patient had been down about eight hours when examined. Marked tympany of rumen.

Treatment.—Only treatment used was inflation of udder with air, using a bicycle pump with milking tube attached. No particular antiseptic precautions were taken.

Results.—Complete recovery in 4 hours, the patient having gotten up in 1 hour after treatment was applied.

Case No. 2.—July 18, 1906. Grade Jersey cow; 6 years old and weighed 1100; very fat.

History.—Fourth calf. Parturition normal. Calf born about 6 o'clack a. m. and was left with the mother. Was found down and

unable to rise at noon of same day. Saw patient about 3 hours later. No previous treatment.

EXAMINATION.—Maximum degree of paralysis. Full lateral recumbent posture. No tympany. Stertor.

TREATMENT.—I arrived at the place upon which the cow was kept in the middle of the afternoon and found owner absent. Was directed to the patient by the owner's wife, and was told to go ahead and treat her. This gave me an opportunity for some experimental work, a thing which I had not expected, and for which I was not prepared, having with me none of the materials I had planned to use.

Opportunities of this kind being rare and wishing not to miss this one, I glanced about for some solution with which to inject the udder so as to determine the efficiency of hydrostatic pressure. The first things that I saw that would answr the purpose was a barrel of sour milk used for pig feed. This material would also give me a chance to test the susceptibility of the mammary gland to infection, and I immediately procured a pail of it for my work. Stirring it up until it was of even consistency, I filled the udder of the patient with this solution to its full capacity. This was the only treatment used.

RESULTS.—Having no knowledge of the value of hydrostatic pressure in these cases, I sat down to watch the results. Within one-half hour I saw that the patient was improving as rapidly as when treated with the air, so after leaving instructions with the housewife as to further care, I left the premises. At 6:30 p. m. the owner called me and said that the cow was up and looking fine when he came in from work, but that he knew something serious was the matter with her because when he milked her she gave the "sourest milk he had ever seen." He removed a part of the milk that evening and the remainder in the morning. The sourness disappeared the third milking and the flow of milk was not affected, no ill effects resulting.

Case No. 3.—Aug. 20, 1906. Shorthorn cow; age 6 years; weight 1250 pounds.

HISTORY.—Fourth calf. Normal labor. Calf born at 3 o'clock p. m. Aug. 19th cow was milked at 6 p. m. and turned into a lot over night. She was driven into a barn next morning and milked at 6 o'clock. Two hours later, on attempting to drive her out of the stable they found that she was very weak and fell down on being urged.

EXAMINATION.—Saw patient 3 hours later. Medium degree of paralysis. Sternal decubitus. Semiconscious. Nose in flank.

TREATMENT.—Having determined that hydrostatic pressure is as efficient as pneumatic, I at this time had in mind the testing of the susceptibility of the udder to the common infectious agents. The solution selected for injecting the udder in this case was water taken from an irrigating ditch which ran through the barnyard and which

no doubt contained plenty of infectious materials. This was used in the same manner as was the milk in the previous case. It was milked out 7 hours later.

RESULTS.—Cow got up in 2 hours and made the usual recovery. The owner (who was not present when the treatment was given) reported that at the first milking the milk looked and smelled exactly like barnyard water. The milk was normal after second milking. There was no mastitis.

Case No. 4.—September 15, 1906. Grade Shorthorn cow, age 4 years; weight 1050; very fat cow.

HISTORY.—Third calf. Labor normal. Had been milked once on the evening before calving. Calf born during the night and cow was milked early next morning. Paralysis appeared about 1 hour after last milking.

EXAMINATION.—Saw patient at 9 a. m. Maximum paralysis. Rumen very tympanitic. Tongue protruding.

TREATMENT.—Used in this case a weak solution of potassium permanganate. Nearly 2 gallons of solution were required to fully distend the udder.

RESULTS.—Cow was on her feet in 2½ hours. The solution was completely removed from the udder in three milkings.

Case No. 5.—Jan. 3, 1907. Grade Holstein cow; 5 years old; weight about 1100 and exceptionally fat.

HISTORY.—Third calf. Parturition normal. Calf born about 4 o'clock Jan. 2. Cow milked at 6 p. m. and was found down next morning. No history of a previous attack. No previous treatment.

EXAMINATION.—Examined patient at 10 o'clock a. m. Sternal decubitus with typical posture. Medium degree of paralysis. Marked tympany of rumen.

TREATMENT.—The owner being absent, opportunity presented itself for some experimntal work. I had been for some time carrying a hydrogen sulphide generator waiting for a chance to try the gas as a treatment for this malady. Consequently I rigged up the generator (a large one) and with milk tube attached proceeded to inflate the udder with pure or nearly pure hydrogen sulphide. This required some time, and as the pressure of the generating gas was not high, it was necessary to make use of a bulb pump in order to get the proper degree of tension in the udder. After the udder was fully inflated I left directions with the owner's wife that the patient was to be left alone until next morning (about 14 hours), when she was to be milked out.

RESULTS.—Owner reported by telephone next morning that the cow had gotten up soon after I left and had been apparently normal. The owner was, however, much perturbed because of the most disagreeable stinking odor that came from the udder on being milked. Reported later that patient gave normal flow of milk after 24 hours.

Case No. 6.—July 23, 1907. Grade Holstein and Jersey; 8 years old; weight about 975. Exceptionally heavy milker.

HISTORY.—Patient had been down about 2 hours. The parturition had been normal and the calf was about 18 hours old. The calf was born during the previous night, the cow had been milked in the morning and came down during the afternoon. No history of previous attacks. Sixth calf. No previous treatment.

EXAMINATION.—Lateral decubitus. Maximum degree of paralysis, with attending symptoms. Rumen much distended with gas.

TREATMENT.—Gas was removed from rumen with trocar. Having with me an ordinary thermocautery loaded with gasoline, I added variety to my experimental treatment of parturient paresis by filling the udder of this patient with gasoline vapor. The results were entirely satisfactory. Patint got up in 1½ hours and walked to the barn, about one-quarter mile distant. The udder was milked out after about 12 hours, and no ill effects.

Case No. 7.—Sept. 11, 1907. Grade Jersey and Shorthorn; 7 years old; weight about 1100 pounds. Very fat and a heavy milker.

HISTORY.—This cow was owned by an Italian rancher living 25 miles from town. Not being familiar with the use of the modern telephone and having none near, the man sent his son in, on a saddle horse, to summon medical aid. Consequently the patient had been down about 12 hours when I reached the place. She in the meanwhile had been gradually growing worse and the owner had decided she was practically dead and that treatment would be of no avail. Being of a very parsimonious disposition, he had been conjuring up schemes whereby to save the payment of my visit, for by being without telephone connections he had been unable to stop my coming. Before I had seen the patient and even bfore I had gotten into the yard he, in a mixture of English and Dago, offered me the cow in payment for my visit. I jokingly told him that I wanted to see the cow before I closed the deal, but he kept insisting that I "taka de cow". I finally got him to show me the animal, and saw at a glance that she was affected with parturient paresis. Having been down for such a great length of time she was near death and apparently had only a few grunts left. I attempted to explain as best I could to the man, the condition of affairs, and told him that she could undoubtedly be cured. The more I tried to explain, the more often and more emphatic the owner said, "You taka de cow for you pay." Finally, getting disgusted with the man, I closed the deal, having decided in the meantime that this was certainly an excellent opportunity for carrying out an experiment I had been planning and had been at loss as to how I could procure the necessary patient at a reasonable outlay.

My sole object in the following procedure was to determine by observation the actual condition of the circulatory apparatus in the brain of a "milk fever" patient. I was surprised to find, however, that during the progress of the experiment other and very interesting phenomena manifested themselves.

I proceded as follows: Fearing that the animal might die of the

trouble before my operation was completed, I partially filled the udder to improve her condition. Then with a scalpel and a bone saw I proceeded to remove the top of the cranium so as to expose the brain. It is interesting to note that during this operation the hemorrhage was practically nil and that the sensory paralysis in the region was so complete that no evidence of pain was manifested. It was just as if she had been anesthetized. I was fairly successful in removing the cranial cap without injury to the brain and when completed I had exposed an area of the surface of the cerebrum about 2½ inches in diameter. I can best explain the appearance of the exposed brain by simply saying that it was truly anemic, being as pale as the gray matter can get. There was, however, enough blood remaining in the veins to give a bluish color to the veinous tracts.

It occurred to me at this point to inflate the udder fully and watch the effects on the circulation of the head and brain. This I did, with the following marvelous and exceedingly interesting results. About 50 minutes after inflation of the udder there began a marvelous change in the arteries. The larger arteries began to fill and in these there became apparent a pulse wave, weak at first but becoming stronger later. As these arteries became filled the blood was forced out into the smaller branches until the normal circulation was resumed. The effect of each heart beat during this filling process could readily be seen. The blood in the arteries being forced ahead a certain distance by each contraction of the heart. Sixteen minutes elapsed from the time the first change in the brain vessels was noticed till the circulation had apparently reached its maximum. There was a noticeable increase in the size of the brain during this time. Also hemorrhage from the cut surfaces appeared as the blood pressure increased and became profuse as time elapsed.

The effect of the re-establishment of the circulation of the brain showed itself in various ways during the next 15 minutes. The recovery in this case was the same as seen in any similar case. Reflexus returned, consciousness also appeared and the sensory and motor paralysis began to disappear. In 10 minutes after I had decided that maximum circulation had been reached in the brain, with some assistance the cow rolled up on her sternum. Hemorrhage at this time was becoming very profuse, and not wishing to torture the cow, I killed her by an incision into the exposed brain, having witnessed as much and even more than I had expected when I began the operation.

I might add that the Italian was greatly interested in the treatment his cow was receiving and more than surprised to see her roll up on her sternum. Ee even became so excited as to want me to fix the top of her head on so he could have her back.

From the foregoing matter we may summarize as follows:

First.—The cause of the malady is not bacterial; neither is it the result of the production of leukomaines, but it is a disturbed circula-

tion producing an anemia of the cerebro spinal system. The dairy cow of today is the result of years of selective breeding by animal husbandmen who had in view the maximum production of milk. For example, nothing is more wonderful than the ability of Colantha 4th Johanna, the great Holstein milch cow, to produce milk. Think of a cow giving 100 pounds of milk or an amount of butter fat equal to five and three-quarter pounds of butter in one day. That is Colantha's record.

The mammary glands in the better strains of dairy cows are even abnormally developed, so that, following parturition, when there still remains in the generative tract a large amount of blood, the demands made by the milk producing organs for blood is sufficient to deplete certain other parts of the body, particularly those parts supplied by the anterior aorta.

Second.—The treatment consists in forcing into the general circulation that blood which is in the mammary gland. This is best done by pneumatic intramammary pressure by which the membranous walls of the various cavities are so distended as to mechanically force out the contained blood. This intramammary pressure may be obtained also by filling the udder with any liquid. This hydrostatic pressure is just as efficient as the gaseous pressure.

Third.—That the susceptibility of the mammary gland to infection has been greatly overestimated.

Fourth.—That absorption of ordinary liquids, gases, or dissolved substances by the epithelial lining of the gland does not occur to any appreciable degree.

[Though parts of the foregoing excellent paper have been published before, it is nevertheless one which all veterinarians will read with more than ordinary interest. It aroused a lively interest, and an earnest discussion in the Veterinary Inspectors' Association, at which it was read.

The subject of milk-fever since the perfection of the Schmidt treatment has received scant attention in veterinary meetings. The feeling seems to have been that we have a treatment that is all but perfect, and little is to be gained by a discussion of the pathology of this condition. It should not be thus. The cause of milk-fever and the reason why the Schmidt treatment is effective is full of scientific, if not practical, interest. Some statements in the foregoing paper are not in accord with our experience, and will not, we believe, be generally accepted by the profession. First: The statement near the beginning of this paper that milk-fever does not supervene in cases of difficult parturition is susceptible of disproval by cases occurring in the practice of nearly every one who has had much to do with this ailment. A case in point is one recently reported by Dr. Knisely of Topeka, Kans., in which there was complete eversion of the uterus at the time of calving. The organ was replaced; retained with difficulty and on the day following, the animal was found down with a severe attack of parturient paresis from which she recovered

after receiving the usual treatment. The cases following difficult parturition probably bear about the same relation to the total number of cases occurring as cases of difficult parturition bear to the whole number of cases of parturition, we would therefore exclude trouble at the time of calving as a factor either in the causation in prevention of parturient paresis.

The statement that anemia of the brain is caused by an acute hyperemia or congestion of the udder and other genitalia would be difficult to prove. In cases of partiurient paresis there is no greater congestion of the mammary glands manifested, than normally occurs at the freshening period of cows; if there be an unusually acute inflammation or congestion at this time why is it not manifested in some of the ways in which we ordinarily recognize inflammation? Immediately after calving the circulation to all reproductive organs except the mammary glands is much lessened. Parturient paresis occurring several days before calving or several days or weeks after calving is not so extremely uncommon as this paper indicates and it has been known to occur in a cow that was not giving milk, and was not due to calve for four months. It is probable that were long periods between the end of lactation and the time of freshening more common in dairy cattle, we should less rarely see parturient paresis in animals that were neither near approaching or recently past the parturient state.

The statements tending to disprove the well-known susceptibility of the interior of the udder to infection must be explained in some way other than the one given in this article. Every one of us who has had anything to do with cows knows how difficult it is to use a milking tube any length of time without getting infection into the udder. Cases of infection following the treatment of milk-fever by the dairyman are so common as to have occurred within the knowledge of every veterinarian, and yet the ordinary dairyman does not expose the udder to anything like the opportunity for infection offered by the injection of barnyard drainage. That the udder was not infected in the case treated with sour milk is not at all surprising—the lactic acid bacillus is a strong and rapid grower and in a suitable medium like milk soon crowds out nearly all of the other bacteria. This bacillus is not pathogenic for mucous membranes but is soon destroyed by them, hence we would expect no ill effects from its introduction to the galactophorous sinus,—in fact, sour milk has been successfully used to combat infection of mucous membrane. For example, in the treatment of leucorrhea. On the mucous membrane of the vagina the lactic acid bacilla will grow luxuriantly for a time, crowding out all others, to be later overcome by its own excretory products or by the body forces.

As to why infection did not occur in the udder filled with barnyard drainage the editor does not feel called upon to explain. The report of the case in which the return of blood to the brain was watched is an exceedingly interesting one and constitutes a very

valuable observation. It offers concrete evidence of th fact which has all along been believed but heretofore has not been established, namely that inflation of the udder promotes a return of blood to the anemic brain.

In closing, if there is one thing we would impress upon our readers more emphatically than another it is: use every precaution to prevent the introduction of infection into the udder of the cow for every time infection gets into a cow's udder serious results will follow, and four times out of five the function of the udder will be lost, the cow will be ruined and your client will be displeased.

In connection with the discussion of parturient paresis the following sketch of the originator of the treatment, reprinted from the Veterinary Journal, will no doubt be of interest to many.—EDITOR.]

HERR SCHMIDT, OF KOLDING.

No country pracitioner of any nationality is better known in the veterinary or agricultural world than Herr Schmidt, of Kolding, in Denmark. Had he chosen to be of a selfish turn of mind, and to have kept his discovery to himself, he might have made an enormous fortune from his researches into the treatment of milk-fever. The generous publication of his results have been the means of saving hundreds of thousands of pounds' worth of cattle, and of converting what used to be a tedious and thankless task for the country practitioner into one which he now undertakes with a light heart.

Born near Hadersley on July 15, 1845, he took his veterinary diploma at Copenhagen in 1872, starting in practice at Smidstruys, and eventually settling down at Kolding. There he soon gained the confidence of the farmers, and by his carefully recorded observations speedily made a name amongst his veterinary collagues as a skillful and observant practitioner.

As a result of his researches into tuberculosis, he published a scheme in 1886 which he had employed for several years with success, in checking this disease in his district. He was the pioneer of the idea that farmers should have their cattle examined at least once a year regularly by a veterinarian, and have the suspected animals isolated and disposed of by fattening or otherwise, so that the loss might be minimized as far as possible.

One of his suggestions, too, was that the milk of suspected cows should not be used for feeding purposes until after it had been boiled. These ideas were carried out with excellent success in his district, and a few years later were elaborated into the most stringent investigations and application of the tuberculin test by Professor Bang, whose scheme for stamping out tuberculosis in the cattle of Denmark has met with such splendid results. Herr Schmidt's researches into the study of milk-fever in cows were first published in 1897, and it needs no words on our part to say how far-reaching and

valuable those results have been. In every civilized country of the world Schmidt's treatment for milk-fever is carried out, and the number of cows which have been saved by the treatment alone can be counted in hundreds of thousands.

Herr Schmidt has been decorated by the King of Denmark as a Knight of Danebroge, and has been awarded a vote of thanks, together with an annual premium, by the Danish Parliament; also in many countries of the world (including Great Britain) he has been honored with the degree of membership of many veterinary and agricultural societies.

He still takes the greatest interest in all matters pertaining to his profession, and was present at the last International Veterinary Congress at The Hague.

PROGRESS IN VETERINARY MEDICINE.

Some "never failing receipts" from the "Farmers' Friend and Everybody his own Horse and Cattle Doctor" by Isaac D. Loz, M. D., V. S. (both degrees were self inflicted) contributed by Dr. W. G. Huyett, Wernersville, Pa., for the amusement of our readers and to show by contrast something of the progress made in veterinary medicine in the past thirty years.

Never-failing receipt for the cure of lock-jaw, first stage. The horse gets stiff all over. Make the horse sore all over. Take the following liniment: Aquo ammonia 16 ounces, Spts. Turpentine 4 ounces, Sweet Oil 2 ounces. Wash the animal all over and give him whisky, 6 ounces ever hour, also Sweet Spts. Nitre 6 ounces, Spts. of Ether 3 ounces, Spts. Camphor 3 ounces, Tr. Opium 6 ounces. Mix and give one ounce every two hours.

In the second stage the horse's mouth gets short and he turns his eyes around so that you can see nothing except the whites.

Never-failing receipt for the cure of thick and bloated cattle. Take vinegar one pint and eggs 8. Stir it well and give it to the animal. If this does not relieve it cut a hole in left side six inches from the hip, this will certainly make the animal all right.

(a) For hollow horn and wolf.

First physic the cow—epsom salts, one pound. Take the blood from the cow; cut the tip of the tail off; take turpentine and wipe the horns; take half pint of salt water, pour it in the ears.

Take vinegar 1 quart, Spanish Pepper 1 ounce. Make it right warm and wash the back all over three times a day. Give powder twice daily.

(b) Never-failing receipt for the cure of corns on horses.

First cut the corns often, and keep the hoof soft and dry; put a poultice on, then grease the hoof, keep good, heavy shoes and take liniment and wash the bleathers right well. This will relieve the horse.

(c) For chronic diarrhea.

Put one egg in a pint of strong vinegar over night until the shell

is dissolved, then boil until half pint, then drink half wineglass full morning and evening.

[Is the last injunction intended for the patient or for the veterinarian?—EDITOR.]

Among articles intended to show the progress veterinary science has made, the following clipping from the New York Herald of January 9th, 1910, deserves a prominent place. This article had appropriate display heads and sub-heads which for lack of space we cannot reproduce here. Every veterinarian should read the clipping clear through. It concerns a part of the past history of his profession with which he should be familiar.

Dr. Thomas D. Lambert's unqualified condemnation of the firing iron as "a relic of barbaric charlatanry" in the practice of veterinary surgery has caused a stir among horsemen all over the country, and directed their attention to the progress made in veterinary science since schools were established for the education and training of practitioners.

In ancient times the blacksmith was often both horseshoer and horse doctor, and some of his remedies and practices were not much, if any, in advance of those of the North American Indians. Bleeding, purging and firing were three of their mainstays in ministering to the ills that horseflesh is heir to, but these were distinctly rational by comparison with some of the "rotes and practices" authorized by custom and recommended by even the educated farriers in early days.

One of the oldest and rarest books extant in the English language relating to diseases of the horse and their treatment is "The Compleat Horseman," a quarto volume of seven hundred pages, covering the whole field of horsemanship, written by Sieur de Solleysell, equerry to Louis XIV of France, and translated by Sir William Hope, who dedicated the work to the King of England in 1696, the year of its publication in London.

Veterinary Science in 1696.

In the author's epistle to the reader Solleysell says that he has banished from his book all of these "mischievous and pitiful routines" and has included only remedies based on reason and good sense. What the discarded remedies must have ben may be imagined after an examination of those which the author regards as rational and abreast of the times.

Several chapters of Solleysell's elaborate work are devoted to "blooding," and in these the reader is informed that the operation to be effective must take place at a certain time, to be determined by the signs of the moon. First of all, he says, "no one calls in question but that there are some times in the year wherein one humor predominates more than another. For example, all are agree that it is the blood which predominates in the spring; in summer bile; in autumn melancholy, and in winter phlegm, and that which is performed in the space of a year is renewed every six hours, which is

the time wherein the whole circulation of the blood is perfected, as an infinite number of experiments have discovered. From midnight to six o'clock in the morning it is the blood which predominates; from six to twelve o'clock in the day it is phlegm; from twelve o'clock to six at night it is bile; and from six to midnight it is melancholy."

"I lay down then for an infallible Rule that the Sanguine horse should be bled at four in the morning, the Phlegmatick at ten, the Bilious or fiery at four a clock in the afternoon and the Melancholick at ten at night."

Some Fine Distinctions.

But this is not the only rule to be observed, for Solleysell says that the operation should be in the fourth or fifth day of the new moon for young horses and when three or four days past the full for old ones, but never when the moon is in the sign governing that part of the anatomy on which the operation is to be performed.

Again, "if your horse be Sanguine operate when the Moon is in any of the earthly signs, which are Taurus, Virgo and Capricorn; if he be Cholerick, when the Moon is in a watery signs, such as Cancer, Scorpio or Pisces; if Melancholck when the Moon is in an airy sign, such as Gemini, Libra or Aquarius; and if Phlegmatick then in any of the fiery signs, which are Aries, Leo and Eagittarius."

Finally, the operation "should be performed in a calm and clear day, and which is free from clouds and fogs, because the Veins being emptyed a little by the Blooding do immediately attract into their vacuities the air, which is an universal Spirit, and which if pure and clear will be no hazzard of altering the blood, but upon the contrary will fill them with pure Atoms, which will rectify it, whereas if it be moist, to open the Veins for such a time is just to mix with the blood noysome Seriosities, with which the Veins do many times abound."

In Solleysell's day and for many years thereafter one of the veterinary medicines most extolled and most sought after was the "essence of vipers." The famous French author prescribes it for colic, and says that "it purifies the blood, resists corruption and consumes all impurities of the stomach, and so undermines and destroys the very root of diseases." Here is his recipe for its preparation, given, he says, "because 'tis dear and to be had only at certain times, when 'tis brought from Italy and those parts where vipers abound:—

The Essence of Vipers.

"Take of purif'd Nitre, pure Salt of Earth, such as you may have from those who make Salt Peter, of each one Pound, dry 'em and reduce 'em to fine Powder, which must be mixt with four times as much Potter's Earth. Then put the whole Powder in an Earthen Pan, and leave it three or four days in a Cellar, till the Salts be dissolved: after which beat the whole Mass of Salts and Earth till it be reduced to a sort of Paste, out of which frame hard

little Balls, of the bigness of small nuts. After the balls are dry put 'em into an carthen Retort, distilling 'em as Aqua-fortis is usually distilled and you will find in the Recipient a Menstruum fit to dissolve Vipers; in order to which, put the Liquor into a Matrass with a moderate Heat and throw a live Viper into it, where she will quickly expire and afterwards melt away like Anchovys in Butter. After the Solution of the Viper suffer the Liquor to settle, then pour off the clear and throw away the thick Substance that remains at the bottom as useless. You may also dissolve in the same Liquor, Corals, Pearls and other proper Ingredients, till the Menstruum be fully satiated and incapable of dissolving more. Then mix one part of this Solution of Vipers with three parts of distilled Cordial-Waters, such as Juniper-Water and give it a fine yellow Colour with two or three Chives of Saffran. This is that Essence of Vipers which is sold so very dear."

For strains of the shoulders or hips Solleysell recommended "the Baron's ointment," which was made by blending five ounces each of "grease of Capons, Badgers, Horses and Mules and the Marrow of a Stag" with various other curious ingredients. This was to be rubbed in hot, after bleeding the horse in the neck and dry swimming him to heat the part affected. Dry swimming was performed by tying up the sound leg so that it could not touch the ground and then forcing the horse to hop on three legs until the "Pores both of the Skin and Flesh open'd, to facilitate the Penetration of the Remedies, which are endu'd with a Virtue to dissipate and consume part of the Slime, Phlegm or thicken'd Humors, to asswage the Pain and cure the Grief."

If this treatment failed, then the horse was to be "given the fire, thus:—Find out the Joint where the shoulder moves and make a Circle about it of the bigness of a Trencher; then pierce the Skin with a red-hot Iron; thro' the whole Space contain'd in the Round, leaving the distance of an Inch between the Holes."

Soft Places for Hard Treatment.

In cases where the horse had grown very lame of an old hurt recourse was had to the following treatment:—

"Cast the Horse on a soft place and hold him so that he cannot stir; then rub or beat the Shoulder with a Clod of Earth, Brick or Curriers' Pommel till it be crush'd or bruis'd, moistening the Part with Water as you bruise it, &c."

This practice of osteopathy with a brickbat seems to have been relied upon by the enlightened profession for the "relief" of other ailments than shoulder lameness. In his chapter on splints Solleysell says:—

"Shave away the hair on the leg and beat the swelling with the handle of a Shoeing hammer till it be soften'd; then take a piece of the Skin of Bacon, not very fat, and lay it on the part, with the fat side outward. Afterward apply a flat Cautery, or red hot Iron, of the bigness of a Shilling, holding it upon the Skin, and

continue after the same manner till the Swelling be dissolv'd; then lay a Plaster over it and shavings of cloth over that, taking care that the Horse do not bite it off."

The seventeenth century treatment for overreaching was spectacular as well as heroic:—

"In frosty weather," says the French king's equerry, "when Horses are rough shod or their Shoes made with long Caulks, they are apt to overreach and make a hole in the Coronet or in the Pastern, which is not without danger, and therefore you must immediately wash the wound with Warm Vinegar, then fill it with Pepper and lay over it a black restringent charge made of Chimney Soot, Vinegar and Whites of Eggs. For an Overreach by the Caulk of the Shoes fill the Hole with Gunpowder, beaten and tempered as they usually make Touch-Powder, then set fire to it and repeat the same the next day."

Tearing Out Sole of Foot.

Perhaps the most barbarous and benighted of all the "cures" that were current when Solleysell wrote was the one for ringbone. For no other apparent reason than that there had always existed a propensity to torturing operations in the treatment of horses, it was the custom to tear out the sole of the foot on which the ringbone appeared, and this "horrible, damnable and senseless practice," as John Lawrence termed it, was usually followed by "giving the fire" with a red hoot knife and also by rowelling and then bathing the wound with hot turpentine or burning it out with unslaked lime and ammonia. If this did not remove the ringbone the operator's failure was likely attributed to his omission to perform it during the wane of the moon, for Solleysell is careful to say that "'tis a general Rule, which admits of no Exceptions, unless in cases of extreme necessity, that the Fire must always be given during the Wane of the Moon; the best time about five or six Days after the Full Moon."

The practice of firing is very ancient. Solleysell says it had been customary among the Turks, Arabs and Moors from time immemorial and was introduced in modern Europe by the Italians, from whom the French and the English derived most of their early learning on the subject of farriery and finished horsemanship. British horsemen still looked to the Continent as the seat of authority on nearly everything pertaining to veterinary science when the National College of Veterinary Surgeons was established, through Lord Grosvenor, a little more than one hundred years ago, and Charles Vial de Saintbel, of the French school, was selected to head the institution.

It was in the English Veterinary College that opposition to actual cautery is said to have first appeared, and as long ago as 1837 a spirited debate took place among members of the English Veterinary Association on the merits of the practice. Then, as now, a majority of the veterinarians favored firing, though some high au-

thorities in the profession condemned the practice and denied its superior efficacy over other and milder applications. One of the foremost of these was Colonel James D. Lambert, director general of the veterinary department of the British Army and president of the Royal College of Veterinary Surgeons. Dr. T. D. Lambert is his nephew. It was the elder Lamber who said:—

"There are no curative properties in a red hot iron. Firing never did and never will repair an injury."

APPLICATION OF THE TUBERCULIN TEST TO DAIRY CATTLE OF NEW MEXICO.

Indexed B. A. I.

By Dr. O. E. Troy, Raton, New Mexico.

Read at Semi-Annual Meeting of Missouri Valley Veterinary Association, Kansas City, February 2-3, 1910.

By way of introduction for this paper I will give a synopsis, as briefly as possible, of the law under which we expect to free this territory from bovine tuberculosis.

Section 1, Council Bill No. 34, reads as follows:

"The cattle sanitary board is hereby authorized to use all proper means to prevent the spread of dangerous and fatal diseases among animals."

"Section 4. The cattle sanitary board is authorized to accept on behalf of the territory, the rules and regulations prepared by the Secretary of Agriculture in pursuance of Section 3 of an act of congress approved May 29th, 1884."

"Section 5. An inspector of U. S. Bureau of Animal Industry or duly authorized, qualified veterinarian of the cattle sanitary board, shall have a right of inspection, quarantine and condemnation of animals affected with a contagious, infectious or communicable disease. The inspector of the cattle sanitary board shall have the same powers and protection as peace officers, while engaged in the discharge of their duties."

"Section 7. All cattle hereafter brought into the territory, intended for dairy purposes or for the breeding of dairy cows, must be accompanied by a certificate, signed by a duly qualified veterinarian (either state or U. S.) showing record of a tuberculin test, made just prior to shipment, and be free from infection; such cattle must be re-tested within three months after arrival in New Mexico by a duly qualified veterinarian of the cattle sanitary board and a report filed with the board. The cattle of every person, firm or corporation engaged in dairy business or selling milk in incorporated cities or unincorporated towns containing 500 inhabitants or over, shall be examined and tested with tuberculin and such animals as are found infected reported immediately to the board. Any person, firm or corporation or any agent or employe thereof, who shall bring any such dairy cattle into the territory without such certificate, or who shall refuse to have such cattle tested, when directed by an authorized veterinarian, shall be deemed guilty of misdemeanor and upon

conviction shall be punished by a stipulated fine and liable for damages sustained by any person on account of spread of disease."

This covers in the main the basis on which we work. All reacting animals are immediately condemned and bought outright by the board inspector, two-thirds of this purchase price being paid by the territory upon presentation of a certificate signed by the B. A. I. or territorial veterinarian showing that the carcass has been burned or properly buried. To establish a fund for the continuance of this work and other sanitary measures Section 9 of same bill provides for an assessment of three an one-half mills on every dollar of cattle, horses, mules and asses valuation in the territory.

The method of testing is that prescribed by the Bureau of Animal Industry, and is, briefly, as follows: The cows are first secured in available quarters, then numbered consecutively, with paint. Temperature of each cow is taken and recorded at 2, 4, 6 and 8 p. m., respectively. During the intervals between the taking of temperatures, the hair is clipped off of a small spot on the shoulder and the skin carefully washed and a disinfectant applied. We also take careful date, covering breed, age, weight and physical condition of each cow. At 8 or 9 p. m. each cow is injected with from one and a half to three cc. of tuberculin, the dose depending upon the size of the animal. The tuberculin used is furnished by the Bureau of Animal Industry, Washington, D. C., and must be used within six weeks after its manufacture. The best method of holding cows while passing the needle, is a problem that has tested our ingenuity. Stanchions serve best; but in their absence, which has been the case in most of our work, we find that the nose strap or leader gives best results.

The first temperature, after injection, is taken on the tenth hour and continued every second hour until the twentieth after, when if no tendency to rise is noticed, the test may be considered complete. All cows passing the test in New Mexico are tagged in the left ear with a tag bearing the initials C. S. B. and its series and number. In most cases in which a reaction is obtained, the rise is noticed on

No.	Breed	Weight	Age	Amount Injected	Time of Injection	TEMPERATURE BEFORE INJECTIOM				TEMPERATURE AFTER INJECTION							
						11 A. M.	1 P. M.	4 P. M.	7 P. M.	6 A. M.	8 A. M.	10 A. M.	12 M.	2 P. M.	4 P. M.	6 P. M.	8 P. M.
1	Holstein	800	7	2cc	8 P. M.	102 3	101.8	102.3	104	107.4	106.6	105.8	105.	104.7			
2	Holstein	900	10	2cc	8 P. M.	100.8	100.7	101.6	102.9	101.5	101.7	101.2	100.5	100.9			
3	Holstein	900	10	2cc	8 P. M.	100.8	102.5	103.	102.5	100.5	101.5	101.2	102.3	105.	106.	103.3	102.5
4	Holstein	900	11	2cc	10 P. M.	102 3	102.7	102 1	101.4		103.3	104.7	106.1	103 3	102.9	103.4	
5	Holstein	800	6	2cc	8 P. M.	101.	100.8	101.8	103.	104.2	104.3	103.4	103.4	104 4	103.7	103.4	

the tenth or twelfth hour. In the table is given the temperature record of a few cases which reacted, also one non-reactor and one cow held in quarantine for re-test after 60 days. Cow No. 1 was in full milk and apparently as healthy as No. 2, the cow standing next to her, the temperature record of which is given for comparison. Cow No. 1 had the appearance of a very sick animal during the reaction, refused feed and gave little milk. Another tubercular animal, No. 3, from the same herd, gave a very different yet typical reaction. It will be noticed that the reaction came much later in No. 3 than in No. 1 and we did not take temperatures long enough to get the second curve, which was so nicely marked in the first reactor. Both of these animals were destroyed and an autopsy showed lesions in the bronchial post-medeastinal, portal and mesenteric glands.

Another case was found in a fine Holstein cow, No. 4, which the owner pointed out to us with pride as an example of the health of his heard; heavy with calf, a splendid milker, and with an every-ready rapacious appetite. In this case the maximum temperature was reached on the fourteenth hour and the second curve beginning on the twentieth; this cow also appeared sick during the reaction, but ate as usual. On autopsy she showed caseated lesions in the bronchial post-medeastinal and portal glands, very small foci in the uperior cervical glands. The supermammary glands were greatly enlarged and undergoing what I will term liquifying necrosis. The temperatures of No. 5 were suspicious but the rise was insufficient to warrant condemnation, being only 1.4 degrees and appearing in an irregular manner. This cow was placed under quarantine to be retested 90 days later. A double dose of tuberculin is used for the second test.

A few of the essential points to be observed in making a careful test are: The animals must be marked so as to insure their identity throughout the test.

All animals should be tied in narrow stalls, or kept in stanchions until the test is completed. Feed, water and milk the cows exactly as is customary. Do not tolerate rough or abusive handling of cows during the test. Use a string and hair snap on thermometers, and be sure to give the required time for registering. Consider carefully surrounding conditions and individual circumstances in the case of each animal tending to produce a reaction. Recognize nothing less than 2 degrees rise or a minimum temperature of 103.8 as a reaction. Always note the temperature curve.

Careful adherence to the foregoing rules will make the test practically infallible. In New Mexico during the present year we hope to complete a test on every dairy cow and properly dispose of every reacting animal. We intend to raise the standard of milk and butter production by instructing dairymen along sanitary lines and provide protection for the honest and progressive dairyman. With only a small percent of tubercular animals in our midst at present, we hope in 1911 to state that there is not a case of bovine

tuberculosis within our boundaries, which is many steps in advance of our older sister states of the Union, who still maintain in congress that we are not as yet capable of assuming the responsibilities of statehood.

[Note.—In addition to the essentials given for making an accurate test, it should be remarked that a copious drink of cold water allowed during the rise will abort the reaction in fifty per cent of the diseased animals.—Ed.]

CATHARTICS IN FEBRILE CONDITIONS.

By John L. Tyler, D. V. S., M. D., Pomona, Calif.

Some months ago in looking over a copy of the Bulletin which fell into my hands, I read an article by Dr. Campbell on the use of purgatives in pneumonia and allied diseases, and at the time I must say that I was verp skeptical and branded the article as dangerous, as in my long experience (about twenty years) I had always avoided cathartics in those troubles, especially where the temperature was high, and this is usually the case, but I will confess that while I am not willing to go the lengths that Dr. Campbell advises, I am free to say that I now think there is something in it. I find that small doses of oleum lini, say from eight ounces to a pint daily, as indicated, and combined with one ounce of turpentine to the dose, almost always lowers the fever and adds to the general comfort of the patient, increasing his appetite and general welfare in a marked degree, still I can't say that I am far enough advanced along these lines to recommend aloes as does Dr. Campbell in many conditions, as I have seen cases lost through its use, or at least I attributed their death to the aloes.

While I am a voracious reader of everything connected with our profession that I come in contact with, I am still quite conservative in taking up every new thing handed out to us, and no one will deny that Dr. Campbell handed us something new when he advanced his purgative treatment of pectoral diseases.

After reading his article I pondered over it carefully and I came to the conclusion that his theory was correct, viz., the development of the toxins, also their absorption and subsequent autointoxication, but the treatment, wouldn't it kill more surely than the toxins, and so it went pro and con, back and forth in my mind until my own horse, a fine driver, was taken with influenza or pink eye so-called. He had a severe attack of it, the temperature being 105½°F., legs badly swollen, eyes and lids congested and swollen, profuse lachrimation, etc. This condition persisting for about seven days despite my usual treatment with which I had ordinarily been quite successful. When on going out to the stable one morning, I found that during the night the bowel movements which had been becoming more and more scanty were almost entirely suspended, only a few mucus coated balls being found, the anus was relaxed and partially open, temperature 105½°F., no appetite.

I now came to the conclusion that it was time to do something else, and I thought of a purgative, but there stood my thermometer at 105½, still he was mine and paid for, so he got during that day 3 doses of raw linseed oil, each containing eight ounces combined with one ounce of turpentine. The next day he was better in every way; temperature down to 102 2-5°F., bowels acting quite freely and more in quantity than I had any idea possible, considering the small amount I supposed he was eating and such an odor, the less said about it the better. It certainly was strong enough to speak for itself.

I gave no oil that day, but the next day gave two doses of eight ounces each, combined with the turpentine and the next day found no fever, appetite very good, and apparently Richard was himself again.

Since then I have had occasion to use the same line of treatment, varied of course, according to the case, and condition of the patient, size of dose, etc., and find it a good adjunct to my old treatment and I will say that I do not now delay its use so long, giving it earlier and securing better results.

[The elimination treatment will win where tried. It is not the germs of infectious diseases that kill but their toxins. The intestinal canal is one of the important organs of elimination, not only for the elimination of undigested ingesta but for the elimination of catabolic products and bacterial toxins from the blood. If we do not keep up active bowel movement during disease we not only neglect to provide this important channel for the elimination of toxins, but we allow it to become converted into a vat for the elaboration of bacterial poisons from which, by absorption, the blood doubles its load of toxins.

It was the abuse of aloes that brought its use in pectoral diseases into disrepute. Aloes or its active principle aloin is not alone a suitable cathartic except perhaps in a very limited number of conditions. To secure a proportionate effect along the whole intestine calomel should ordinarily be combined with aloin. With the combination of aloin and calomel we have yet only a secretory stimulant to the intestine and very indirectly a peristaltic stimulant. Since peristalsis is absolutely necessary to purgation it is only rational that we combine with our secretory stimulant of aloin and calomel a peristaltic or motor stimulant to the intestinal wall. For this we have nothing else that equals strychnine. This agent should be a part of nearly all cathartic combinations; perhaps of all cathartics for use in pectoral diseases. Then when the aloin or calomel, or both have increased the secretion, loosened up the contents and stimulated the mucus membrane of a portion of the intestine the peristaltic (motor) stimulant will move it along to another section of the intestine and its irritation at the original point ceases to begin further on. In this way is secured a physiologic action throughout the intestinal canal instead of a toxic action on it in separate sec-

tions. For if the secretory stimulants are left to themselves they act locally till their initial stimulation becomes irritation which increases till it extends to the muscular coat and thus indirectly produces peristalsis and at the cost of an acute irritation of each successive section of the intestine.

The average amount of strychnine required to produce peristalsis under these circumstances is ¼ grain of the sulphate per orem every hour. Except in the epizootic form of influenza and in shipping fever there is little danger of superpurgation from the administration of aloes combined as above. In these forms of influenza the practitioner must proceed with great caution but he should nevertheless keep at it until the intestine of his patient has been completely emptied.—Ed.]

Indexed B. A. I.

THE PREVENTION OF STRANGLES.

By General Smith, D. S. O.
Director-General of the Army Veterinary Service.

The inefficiency and financial loss resulting from strangles cannot be too frequently impressed, and it is often a matter of surprise to hear this disease spoken of so lightly. As a matter of fact, there is no affection of army horses which can compare with it either in the prolonged inefficiency it produces, or in such far-reaching disastrous results. Not only is strangles responsible for a large amount of sickness among young horses, but in young horses it is the chief cause of pneumonia, pleurisy, and subsequently of "roaring".

Strangles is a highly infectious disease due to a micro-organism. It uually shows itself by means of absecsses in the region of the throat, but these are only the local mainfestations of a disorder which exists throughout the system, accompanied by fever and wasting. Many horses suffer from it unrecognized, because no abscesses form externally. Many of the cases called influenza, epizootic fever, or catarrhal fever, are cases of strangles without the external abscess. The nasal discharge of such cases frequently contains an organism which cannot be distinguished from that of strangles.

It is well known that the class of organism to which strangles belongs may, by suitable methods, be made to furnish a serum, which when inoculated into a susceptible animal, confers a temporary protection against the disease. Working on these lines, various protective strangles-sera have been produced, of which three have been submitted to experimental test during the past year. These we will designate as A. B. and C.

The immunity conferred by a serum is only temporary, but if it can be made to last one or two months, the time thus gained is invaluable, for strangles in the army is maintained only by the regular introduction of the disease by remounts, which have contracted it in dealers' stables. If our remounts can be protected immediately when bought, strangles should be capable of control. The first effort in the direction of protection was to ascertain

whether any of the three mentioned sera would afford temporary immunity. The only method by which this could be determined was to take a batch of remounts, inoculate half with serum, and use the other half as controls. This was done in the following case:

SERUM A.

Remounts inoculated. . .	32
Subsequently affected with strangles, twelve days later....	1
Subsequently affected with strangles, four months later...	1
Remained healthy. . .	30

CONTROLS.

Total number of remounts not inoculated	48
Subsequently contracted strangles	9

In the above observations it seems clear the serum was of use. The whole of the remounts formed one batch, and the chances of infection were equal. The horse which contracted the disease twelve days later was probably affected at the time of inoculation. The one which developed it four months after inoculation demonstrates that the immunity does not last that length of time; but one or two months' immunity are worth paying for, as in this way the disease could be practically excluded from the service.

Serum B tested as above proved useless.

SERUM C.

Remounts inoculated. . .	39
Subsequently contracted strangles	2
Remained healthy. . .	37

CONTROLS.

Total number of remounts not inoculated	44
Subsequently contracted strangles	6
Escaped infection. . .	38

Of the thirty-eight which escaped infection, a very large number subsequently suffered from catarrh; in fact, out of the whole batch of forty-four, only seven remained free from trouble of any kind, whereas in the inoculated batch of thirty-nine, twenty horses remained free from any form of catarrh.

The most severe test to which an animal protected with serum can be subjected is to expose it to infection; if protected, no ill effect arises; if the protection is only partial the disease runs a mild course, and permanent immunity results.

Nine horses previously protected with Serum C were exposed to strangles infection under conditions which would have led to infection had they been susceptible. Of the nine, three had a rise of temperature on fifth, ninth, and thirteenth day after exposure, followed by catarrh and thickening of the glands of the throat, but at no time did any external abscess occur. Six of the nine were completely unaffected.

It may fairly be assumed that the previous protection with

serum was the explanation of these encouraging results, but beyond that assumption we are not entitled at present to go until many more observations have been made. The only definite statement that can be made is that the results are encouraging and hopeful for the future.

Animals treated with a special serum while the disease was in the process of incubation were not benefitted, nor the violence of the attack in any way modified. Some improved method of employing serum with the sick is being looked for, but experience will, no doubt, show that the important point is to inoculate before the horses are exposed to infection.

These remarks on strangles were prefaced by a statement that the disease, in spite of its ravages, is not taken seriously. The spread of strangles through a batch of remounts is indicative of want of appreciation of its extreme infectiousness. The infectiousness cannot be assigned an exact expression, but it is so high that perhaps no horse can escape it that has not passed through an attack of the disease. This indicates the great care which should be taken in the isolation of remounts, and the further isolation of those showing signs of catarrh. It may be argued that insufficient stable accommodation exists to admit of anything but a very limited isolation. This is so, but there is always the barrack square available for seasoned horses, the remounts being accommodated in their stables.

The daily disinfection of mangers, walls, fittings, and flooring of stalls occupied by remounts durnig the strangles period is a tedious process, necessitating a small permanent staff for the purpose, but repays the trouble a hundredfold by the security it affords.

The virus is readily destroyed by efficient disinfection with the spraying machines now available, which give great penetration and search out all cracks, crannies, and crevices, where microbes can lodge, while all brickwork, ironwork, mangers, bails, etc., are immediately sterlized by the disinfecting lamp. Nothing, in short, is required to keep an outbreak of strangles within moderate proportions but vigilance, thoroughness, and common-sense.—Veterinary Journal.

PATHOLOGICAL SHOEING.

By D. B. Leininger, D. V. S., Kansas City.

Read at Semi-Annual Meeting of Missouri Valley Veterinary Association, Kansas City, February 2-3, 1910.

By shoeing is meant the application of any artificial means for the protection of the hoof and its contained structures. Though a much-debated subject, it is still uncertain to whom or to what race should most credit for the invention of shoeing be given. It appears credit should be about equally divided between the Greeks and the Romans. The materials used were woven broom reeds, bast, etc., also a type of shoe known as hippo-sandal. This consisted

of an oval metal plate provided with rings at either end and was fastened on with straps—a shoe which in this day would be termed very clumsy and impracticable. These shoes have been found in Germany, France and England, below the soil; the richest discovery being made in 1851 and 1855 during the excavations at Dalheim in Luxembourg. The Celts are credited, however, by French investigators as having employed nailed-on shoes before the Christian era, and having extended their use throughout Gaul, Germany and England.

And so to consider it briefly, shoeing has been remodeled and improved until the present time. The materials now used consist principally of rubber, leather, steel and iron.

The horseshoer derives from anatomy a knowledge of the construction of the foot; from physiology a relative guidance in treatment, and from surgery an acquaintance with the methods appropriate to the relief of the diseases of the foot; and one to attain success in pathological shoeing should know these principles thoroughly, else his efforts may be futile.

The old adage, "No foot, no horse," is a true one. When dealing with the foot we are dealing with a mechanism in which we must consider the functions of the separate parts, such as the tendons, extensors and flexors, which are moved by their muscular attachments above the knee in the front limbs, and above the hock in the hind limbs; the bones of the foot, which consist of the three phalanges, including the navicular and sesmoids and the distal end of the great netacarpus and metatarsus; the corium, a felted mass of connective tissue, blood vessels, nerves and lymphatics; the keratogenous membrane, consisting of five horn-secreting structures, namely, perioplic ring, the coronary band, sensitive laminae, sensitive sole, and sensitive frog in connection with the lateral cartilages and plantar cushion; and the protective structures, horny wall, sole and frog.

Pathological shoeing treats of these structures when in unnatural or diseased conditions, which may be manifold.

A great many abnormalities are acquired by the foal's foot which are fore-runners of the disease in the horse's foot later on. It should be noticed whether the colt during the growth of the hoof is developing long toes, or high heels; whether the feet be toeing in or out; if both quarters are growing naturally or contracting. Any of these conditions may be remedied in the colt by trimming to obtain a normal slant. If the hoof be dry, it should be moistened from time to time and occasionally smeared with some good hoof ointment, among the best being vaseline or lanoline.

The colt raised in the stall should have plenty of exercise on smooth ground to develop a good foot.

Care of the Shod Hoof.—When shod the hoof is more exposed to injury than when unshod. Though shoeing is absolutely necessary to permit of work on hard roads, it prevents or diminishes the

expansion and contraction of the hoof; it thus interferes with local circulation and checks the growth of horn; to this may be added the ill-effects of standing in stables—the animal suffers for want of exercise, from the foulness of the surface on which it stands, and from the drying of the hoof. Continued standing without exercise causes contraction of the hoof, and atrophy of the frog, a condition favored by dryness.

This is more noticeable in front than in hind feet. Badly laid or uneven floors cause fatigue of the limbs, and favor the accumulation of urine and filth and are thus the indirect cause of the attacks of thrush. The hoof should be shortened and shod every four or five weeks, to prevent such contingencies. The stall should be kept clean and the foot moist. A great many injuries of the foot and limbs are caused by the first few shoeings, such as laminitis, contraction, interfering or cutting, and corns, especially in the young draft horse, whose feet are tender from running in pastures; as soon as shod they begin to dry out and contract. The pressure of the open shoe on the heels, especially when a little short and when high calks are used, has a tendency to produce corns—hence these horses often have corns after the first or second shoeing.

I would advocate shoes allowing frog pressure in all young horses, especially the heavy type, at the first shoeings, and if calks are used they should be very low, using leather soles and packing which has a tendency to break the jar on hard streets.

The hoof should be pared perfectly level, leaving plenty of sole and frog; in fact, removing more than loose horn is a fault, and after the shoe is prepared and nailed on the parts of the hoof contacting the shoe should be all the ground surface of the hoof wall, the white line, and about one-eighth of an inch of the horny sole. The nails should be driven reasonably high, but not deep, the clenches rasped smooth, the peripole should be spared as much as possible, as it protects the crust or horny wall. A good angle of the hoof and pastern after being shod should be about 48 to 50 degrees in the front feet and 50 to 53 degrees in the hind feet.

Contraction.—Which means the narrowing of the posterior half of the foot, and pressure upon the sensitive structures. I believe this to be the commonest pathological condition, met with in the foot of the horse. It may develop to a very slight or to an extensive degree. It more often occurs in front feet than hind, and is often the forerunner of corns, side bones and sand cracks. It may be uni-lateral or bi-lateral. In extreme cases we find both halves encroahing upon the frog. The bars instead of running backwards and outwards from near the point of the frog to meet the angle of the heel, will form a semi-circle, and the posterior half of the bars will be pushed against the frog and the frog atrophies from non-usage; the central and lateral furrows of the frog are very narrow and sometimes completely disappear. The hoof is usually very dry and hard, with throbbing of digital arteries

and pain on pressing or tapping the hoof. If in one foot, the horse will rest the foot; if in both feet, he will shift the weight from one foot to the other; the gait will be unsteady and stumbling occurs while in motion. He stands with fetlock upright; sometimes bending of the knees occurs, due to the tenderness of the sensitive structures; the pain may become so acute as to throw the horse off his feet. The hoof becomes longer and narrower, the horny sole more concave, atrophy sometimes extends to the plantar cushion and ospedis, in which it is more noticeable at the wings upon dissection.

By the continued pressure due to the contraction of the hoof the sensitive sole and wall are bruised, causing rupture of blood vessels and an extravasation of blood into the horny tissue, resulting in a discoloration of yellowish red or purple, termed corns. The point of the coronary band suffering most is probably where it reflects forward to become continuous with the bars posterioriorly, the rusult being sand-crack; also the bars themselves show sand-cracks, due to their distorted condition.

Sand-crack of the coronary margin is often produced at the quarters, due to contraction in hoofs which are abnormally long; the dry, hard horn is unyielding at the ground surface but expands to a slight degree at the coronary margin causing a bulging in an upward direction when weight is placed on the foot. Finally a crack is the result. This condition may be taken for shoulder lameness, chronic navicular disease or strain of the pastern joint. The causes may be predisposing or exciting. Among the predisposing causes are faulty conformation of the limb or defective shape of the hoof. But these seldom cause lameness in the unshod horse and weak feet possessing long toes and low heels where the anterior and posterior margins form an angle of less than 45 degrees with the ground. The more oblique the hoof, the more likely to contract. The exciting causes are defective shoeing, consisting of badly constructed shoes; faulty preparation of the feet, and weakening of the sole, bar and frog by excessive paring.

Prognosis.—We should first examine the lateral cartilages, and if ossification has taken place improvement in form need not be expected. Note the conformation of the limbs; when the axis of the foot and form of the hoof are normal the prognosis is favorable, but if the foot axis is very oblique and toes turned outward the conditions point toward contraction, the inner heel will be found encroaching upon the frog and the bulbs displaced. In very old animals which have suffered contraction for years the prognosis is unfavorable. In young animals without these complications the prognosis is favorable.

Treatment of Contraction.—Consists in restoring the hoof to its normal width, the first object being to soften the horn. This is best accomplished by warm foot baths or poultices. In restoring pressure to the frog there are several methods, such as the use of

tips, shoes with thin heels, turning the horse out to grass without shoes, shoes with bar-clips, the use of springs to thrust the heels apart, rubber pads and bar shoes. I prefer the rubber pad or bar shoe with leather sole and packing. After the foot has been softened by the above-named methods, paring consisting of lowering the wall and bar of the contracted heel by paring very thin, and then by rasping the wall at the side as high as the coronary band and as far forward as the contraction extends until it yields readily from pressure of the thumb, the foot is then ready to have the shoe or pad applied. If the foot is very oblique with a long toe it is better to use a pad with a high heel; if a bar shoe is used, side calks should be used at the heels in order to get a more upright position of the pastern after the hoof is shod. The weight of the shoe or pad should be placed well back on the bulbs of the frog, as weight over the navicular region may cause lameness, especially in these cases. If the frog is atrophied very badly, leaving a space between it and the bar of the shoe or the pad, a wad of oakum or tow can be placed between them. The shoes should be changed in two or three weeks, for the first two shoeings with this method and the frog is pushed upward against the sensitive frog and plantar cushion, these in turn force the lateral cartilages outward, widening the new growth of the wall, which in a few weeks can be seen very plainly. The hoof should be kept soft and anointed, especially after soaking, as it then has a tendency to dry very quickly. I have found this the best method for treating contraction in cases where the owner wishes to use his horse.

COLIC.

By Dr. D. O. Knisely, Topeka, Kansas.

Read at Semi-Annual Meeting of Missouri Valley Veterinary Association, Kansas City, February 2-3, 1910.

Colic is a name loosely applied to any of a great group of disorders whose chief diagnostic symptom is abdominal pain. Colic is one of the oldest known diseases of the equine, and except where horses are segregated in considerable numbers it is the most important.

This subject is discussed more frequently at veterinary meetings than any other. It is an unfailing topic of conversation where two or more veterinarians are gathered together, and except for the introduction of stomach aspiration we have made less progress in its treatment than perhaps any other important ailment of the horse.

Bacteriology, with all that it has done to advance and improve the treatment and the prevention of infections, has contributed not one iota to our understanding or treatment of colic in the horse. All the researches and discoveries in the realm of pathology during the past twenty-five years have utterly failed to aid us in handling the most important disease of our most important animal. Except

for the rather doubtful value of the administration of antizymotics, we owe little to the advancement of therapeutics during the past twenty years. The use of the stomach tube stands today the most important advance made in treatment of equine colic in 300 years, and the only important one during the past fifteen years.

In my opinion, however, we need not deplore our lack of progress in the treatment of this ailment. The use of the stomach tube will accomplish as much for this ailment as all the discoveries in bacteriology will do for infectious diseases. The stomach tube stands in the same relation to other treatments of colic that modern aseptic surgery stands to the butchery of a hundred years ago.

It is unfortunate that by common usage we have the ensemble of most abdominal affections grouped under the often misleading name of colic. It were much better if we used such terms as indigestion, impaction, volvulus, intususseption and constipation. If this were the case and had a general name were never used for all of the above, it might be that fewer of the profession would give one medicament when an entirely different line of treatment is indicated. In my experience during the past sixteen years, not all the time with a small practice, I can positively assert, and I have the figures to prove it, that the first named condition occurs ten times where any of the other group occurs once, that is that more than nine out of ten of all cases of colic of every description are simply cases of indigestion and gastric indigestion at that, for if you will but remember the visceral anatomy you will agree with me that it is extremely unlikely that the small stomach of the horse could handle its part of an ingesta upon which the capacious intestine would fail. As a matter of fact it can't and except where there are anatomical lesions in the intestine inhibiting or impairing its function we find indigestion in the horse always, perhaps with very, very rare exceptions, arising from a fault of gastric digestion.

Cathartics are positively contra-indicated in cases of gastric indigestion, as I shall conclusively show later on. Yet notwithstanding the overwhelming majority of cases of colic the veterinarian is called upon to treat are cases of indigestion, gastric indigestion remember, more or less complicated by the great train of ills that follow in its wake. Most veterinarians and most writers on the subject insist upon the administration of cathartics, although colic from constipation in the horse is so rare that many practitioners have never seen it at all. In many cases of gastric indigestion there exists also a constipation but it is seldom severe or dangerous and should not be treated until there is no longer any likelihood of carrying indigestible and irritating matter from the stomach and small intestines through the alimentary canal.

I can liken such procedure to nothing less foolish than the following: Suppose you were out duck shooting and you found you had a load in your gun that would not discharge. Suppose instead of moving the lever and throwing it out, you secure a hammer,

chisel and punch and proceed to drive it on through the gun so that it may be discharged through the "natural opening". Such procedure would be analogous to the giving of cathartics in these cases of indigestion and attempting to force from a peck to one and a half bushels of fermenting, putrefying, stinking, poisonous ingest along the hundred feet of the alimentary canal to discharge it by the "natural opening". The only rational treatment in my opinion for this indigestion is the immediate removal of the cause of it, the rotting ingesta, by the easiest, quickest and surest way; i. e., via the stomach tube route. By the use of a proper stomach tube, and that necessitates one with a double opening, for it is a law of physics that a liquid cannot be siphoned through a single opening; by the use of a proper tube, one need never fail to empty the stomach of a horse. Anti-peristalsis will frequently empty the small intestine at the same time. When the cause of the trouble is removed, unless there is some anatomical lesion to prevent it, recovery is usually but a matter of a few minutes, or hours at the most. This treatment requires no high-priced drugs, no tedious waiting, and is effective beyond the conception of those who have not seen it used.

Now, here is what the tube will do. There is no question about this. I have a hospital report of more than four thousand cases of indigestion colic to show it, and can convince any man who will come to my hospital any day in the year and see me treat colic. The tube will save every case of colic it is possible to save with any treatment. It will, in addition, save 75 per cent of those that die under any other metho dof treatment. It will save every case of colic in which there is not a stomach or intestinal rupture, intususseption, volvulus, immovable obstruction, or some other necessary fatal anatomical lesion. The tube treatment will get the horse back into the harness in one-fourth of the time required by drug treatment. Intubation will save the veterinarian from 25 cents to $2.00 on drugs in every case where it is used. It will save the veterinarian the long, tedious waits with the colic cases that frequently cause him to miss other calls. The tube will please his clients. The tube will enable the veterinarian to get twice as high a fee as he can where it is not used

CASE REPORTS—BACTERIN TREATMENT.

By A D. Knowles, V. S., D. V. S., Livingston, Montana.

As per your request I herewith enclose a short article on my experience in the use of bacterins which includes a few reports of cases.

The bacterins I have used has been principally of my own preparation. The material has been secured from strong, otherwise, healthy horses and in most cases the pus was aspirated from an unopened abscess. I have never used the contents of a hygroma.

I comemenced using bacterins in March 1909 and during the first few months used the autogenous type with very pleasing re-

sults. In September 1909 two cases of fistulous withers were presented to me at the same time, one a large fat draft horse with fistula of the withers involving the dorsal portion of the ligaments. The other horse was a light thin driving horse which had done service in the Yellowstone Park for three months during which gone through a lingering siege of influenza.

The material for the treatment of these two cases was taken from the large horse and they were treated alike by injections of five to ten cc. every five days. The abscesses were opened and treated with an aqueous iodine solution about three times a week.

The thin horses gained flesh and both were well at the end of eight weeks.

Since treating the above cases I have used my own preparations of bacterins on all cases where staphylococcus infection was present and in all wounds of a serious nature where the formation of pus seemed probable.

Two cases of inter-septum nasi abscesses were treated after opening, by weekly injections of bacterins and daily applications of an aqueous solution of iodine. One was well in four weeks and the other required eight weeks. This kind of abscesses formerly required a much longer period of treatment in my hands and always left the patient with a thickened nasal septum which caused some difficulty in breathing.

The only case which I have treated with bacterins which has not given satisfactory and definite results was that of canker of the foot of long standing. It was treated only at irregular intervals.

I have used in addition to the bacterins prepared by myself one-hundred-fifty doses of poly-bacterins manufactured by Dr. A. T. Kinsley of Kansas City.

These I used on suppurative conditions I had occasion to treat when out of my own preparation and have also used it in all conditions where there was evidence of streptococcic or mixed infection.

On one occasion I saw twelve cases of strangles in horses on the same ranch. Three of the cases seemed much worse than any of the others and were treated the same as the other cases except that each of the three horses received 2 cc. hypo-injection of poly-bacterins.

The owner reported in two weeks that the three having received the bacterins showed marked improvement within three days after the injections and continued to improve until they were well while eight of the nine cases not receiving poly-bacterins all required a greater length of time to recover and the ninth died.

Two four-year-old geldings were brought from the country and placed in a city stable where strangles had existed up to the time. I gave each horse a hypodermic injection of 2 cc. poly-bacterins and they remained healthy, although working on a coal wagon during the daytime.

A horse fell on a harrow and three teeth penetrated the flesh in

the right epigastric and mesogastric regions opening a bowel in the lower mesogastric region. I saw the case five days after and found a temperature of 104⅘° F. Bowel contents issuing from the lower wound and there existed a local peritonitis.

The wounds were all enlarged and disinfected as well as possible. The bowel rupture which admitted two fingers was sutured with silk and the wound packed with iodoform gauze; 2 cc. poly-bacterins were given and repeated once a week. The wounds received daily treatment.

At the end of three weeks the bowel wound was healed and the flesh wounds almost closed. Temperature normal and the horse was allowed full rations. He had been fed sparingly during the treatment.

I regard the opsonic treatment of infectious conditions as a very valuable adjunct to other methods and am convinced that much of its usefulness has yet to be determined.

TETANUS IN THE DOG.

By F. F. Brown, D. V. S., Kansas City, Mo.

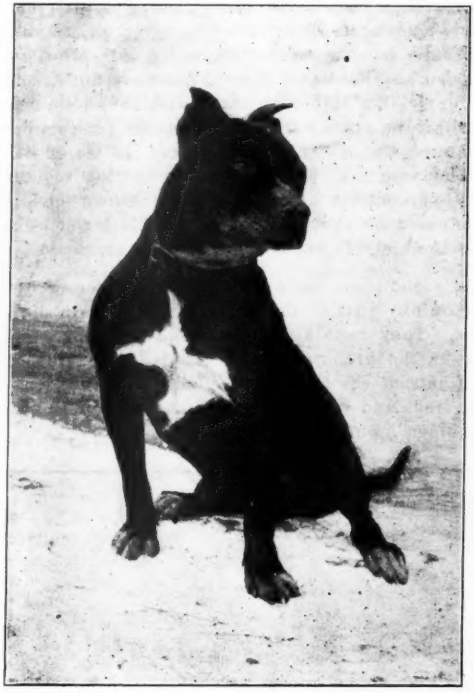
About the middle of December, 1909, there was brought to the hospital of the Kansas City Veterinary College a pit bull dog that exhibited to the writer a rather peculiar and interesting train of symptoms. There was noticeable muscular rigidity, a drawn expression, squinting eyes and erect attitude of the ears, with complaint from the owner that the dog had slight difficulty in both eating and drinking.

The owner was advised that the dog betrayed symptoms of tetanus and inquiry developed the fact that the animal had suffered from a wound in the foot about ten days previously. No treatment was prescribed and the owner was requested to return with the animal in a couple of days. At this time the symptoms were well marked, all of the above recited conditions being exaggerated. It was requested that the dog be permitted to remain at the hospital for observation. No treatment was administered inasmuch as it was desired to observe the symptoms unmodified by drugs, on account of the rarity of tetanus in the canine.

The symptoms gradually became more pronounced until a point was reached where the spasm of th extensor muscles became so great during movement that it was with difficulty that the animal was able to maintain its equilibrium. The breathing became greatly accelerated under moderate exercise and all the diagnostic features of tetanus became intensified under slight excitement.

At the expiration of about 10 days the disease had reached its greatest severity, at which time the dog partook of food and drink with great difficulty. At this time the animal was photographed, but the illustration gives one only a faint idea of the well defined symptoms displayed, as the case proved most interesting when

locomotion was attempted. From this time on there was gradual improvement and in about 10 days the animal was in condition to



go home. Altogether a period of about 30 days elapsed from the time the symptoms were noticeable until they had practically disappeared.

No drugs were given at any time excepting one dose of physic which was necessary to overcome the constipated state of the bowels.

MELANOSIS.

By B. F. Kaupp, M. S., D. V. S.

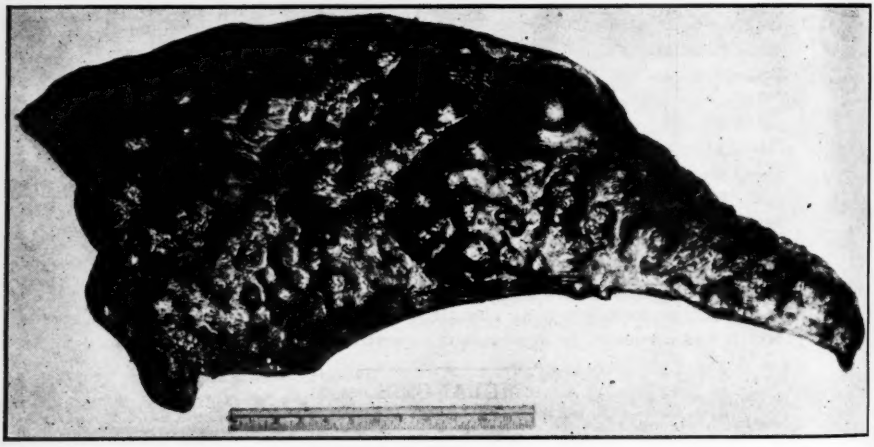
Pathologist Veterinary Department Colorado Agricultural College.

Melanin is a black pigment of the body. It is supposed to be a proteid product. It is normally found in those epithelial cells that build up hoof, horn in the retina, iris, choroid and in the meninges of the brain and in the rete malpighi of the epidermis. Tumors containing melanin are found in the horse, hog and ox.

The composition of melanin appears to vary. it is usually rich in sulphur and contains no iron. This fact would indicate that it was not of blood origin but a proteid product. It is usually insol-

uble except in alkalies. Experimentally, when injected into an animal it is converted into a colorous substance, which has been given the name of melanogen. It is then excreted by the urine. Urine that contains melanogen turns brown in color on standing. Melanogen has recently been isolated from white hair, wool and skin. A theory has been advanced that if conditions are not favorable to the conversion of melanin into melanogen and thus eliminated, melanosis may result; i. e., if the ferment necessary for this conversion is not present then the melanin is deposited or stored in the body. Artificially, melanin may be produced by heating together proteids and strong hydrochloric acid. The dark brown melanin results. When decomposed by strong alkalies there is formed skatol, indol, etc., as does the melanin obtained from the body.

In hogs, melanomas have been noted, by the writer, to occur cutaneously on any part of the body and varying in diameter up to three inches. They have also been noted in other cases involving the viscera, as the kidneys, lymph glands, liver, spleen, etc. The color of the hair of the hogs so affected varies, but has been noted to be black, red, and white. In age, as seen on the killing floor, eight to eighteen months.



In cattle they may occur on the lips, body or in the viscera, and have been noted in red and black cattle.

The majority of cases in horses are noted in old gray ones. Those whose hair is growing white. These melanotic tumors appear at the root of the tail, around the anus, and cutaneously on other parts of the body, as the regions of the head and body.

The case here reported was from an old gray horse which had shown no signs of illness previous to the injury received from a

kick from another animal and which resulted fatally. At the time the horse was seen there was evidence of considerable abdominal pain, with soreness on one side of the abdomen. Later the animal died, and an autopsy was held. Upon opening the abdominal cavity, fecal material was noted and further examination revealed a rupture of the sternal flexure of the colon. A hemorrhage about eighteen inches in diameter surrounded this part. This injury was perhaps the result of the blow. The liver was large and studded throughout with melanotic tumors up to one-half inch in diameter. The most interesting lesion was in the spleen, a photograph, taken by the college photographer, is here presented. The spleen was enormously enlarged. Weight 17.5 pounds. It measured 36 inches long, 15 inches wide, and 4 inches thick. The tumors varied in diameter up to three inches. A 12-inch rule beside the spleen gives the reader a good idea of the size.

AN INTERESTING CASE OF CHOKE IN A DOG, WITH AN UNCOMMON SEQUEL.

By G. H. Livesey, M. R. C. V. S.

The subject of this note was a dachshund which met his death as the result of swallowing a sharp bone which became arrested in the thoracic portion of his oesophagus and eventually penetrated his aorta.

I was hastily summoned to the dog very early one morning because he was vomiting blood. When I arrived at the house I was informed that the dog had jumped off his mistress's bed, on which he had been lying, and had three times vomited a considerable quantity of blood. On examining the vomit I found that it was practically pure blood, now coagulated, and not blood-tinged mucus. I then thought he must have ruptured a blood-vessed in his stomach.

Early the next morning, however, we found him dead, after having vomited a large amount of blood.

The post-mortem examination revealed a piece of bone (vertebra of a sheep) lodged in the esophagus just behind the level of the second rib. The transverse process of the offending lumbar vertebra had been broken and was wedge-shaped, and the point had been driven through the esophageal wall and into the common aorta. When the bone was in situ its wedge-shape quite closed the aortic wound, but when the dog moved about, and the bone was slightly displaced, blood evidently passed along the track and into the stomach. When the bone was removed a probe could be passed easily through the esophageal and aortic wounds into the heart. It is remarkable that the tough elastic tissue of aorta could be pierced in this way. No doubt the puncture was completed when the patient jumped from the bed, as no blood had been vomited until then. The ulceration of the esophagus indicated that the bone must have been there quite a week.—Veterinary Journal.

THE TREATMENT OF MAMMITIS IN THE COW.

By M. L. Bigoteau.
Veterinary Surgeon of Ouzouer-le-Marche.

In a note published in this journal [Revue Generale de Medicine Veterinaire] in 1905, I made known the results of systematic treatment of mammitis of the cow by injections of boricated water. Inject into the sinus of each affected quarter 4 to 6 ounces of a 3 per cent boric acid solution. The solution is made with boiling water. The liquid is injected at atmospheric temperature in summer; in winter it is kept at a temperature of 20° to 25° C. At the same time a purgative is given internally (mixture of sulphate of soda and Barbadoes aloes). The inflamed quarters are milked out every three or four hours until cured. The boricated injection is not renewed except in rare cases, when the milk continues to be altered. In these instances a second injection is made after three or four days.

This method has since been employed in France and foreign countries in general, with the same success. For successful treatment it ought to be practiced early. Another condition is also necessary, and neglect of it has doubtless caused failure in not a few cases. For favorable boricated injection the inflamed quarter must be completely emptied before receiving the injection.

The usual milker, even though expert, is generally incapable of completely emptying the contents of the reservoir. I have hundreds of times observed that when the milker declares that the gland is empty, and that nothing more can be drawn, that a clot filling the collecting sinus can be extracted. This previous operation constitutes the tour de main which decides the success of intervention. The reservoir is situated inside at the origin of the teat, levelled out under the skin. One of the first effects of infection consists in coagulation of the collected milk. It is this clot that must be extracted. It is done by patient work of dissociation; it is accomplished by repeated pressure from above to below with the thumb and one or two fingers, so as to break up and detach the coagulated mass. This being done, catch hold of the base of the teat with the hand—which the milker never does—and operate by gradual regular pressure until the extremity is free. Renewing this procedure as needed to dissociate the clot, finish by extracting the contents of the sinus. Sometimes a pasty mass is obtained about the size of a nut. The operation is successful when the cutaneous region corresponding to the sinus, previously stretched, declines and gives the soft feel of a slightly edematous tissue. The foregetting of this simple precaution leads to the majority of unsuccessful treatments, for I believe that every mammitis of the cow is amenable to boricated medication in the conditions indicated.—Veterinary Journal.

Dr. A. F. Schalk of the Bureau of Animal Industry, who has taken up his duties. He will also do experimental work.—The Breeders Gazette.

A PRACTICAL BANDAGE.

By Dr. Unterhoessel Muelheim, Rhein, Germany.

From Berlin Veterinary Weekly, February 3d, 1910.

For many years past I have used a bandage which because of its convenience of application and permanency will undoubtedly gain many friends. It has advantages over the bandages in ordinary use, and is a permanent dressing made of adhesive, antiseptic material.

Heretofore in the **treatment of panaritium** in cattle, **hoof amputation** has had no satisfactory treatment, there has been no bandage that would prove permanent and **resist moisture and exposure to infection from stable manure.** The usual cheese cloth or even the linen bandage, though coated with tar, permits ready absorption of liquid manure to the decided disadvantage of wound healing. Such dressings too, espcially when applied to the lower extremities, prove but temporary and soon rub through and separate from the diseased part to which they have been applied.

The bandage I have used has proven ideal in just these conditions. It forms a covering like a rubber shoe when applied to hoof and claws. Being absolutely waterproof, it forms a safeguard against infection and moisture. It can be readily applied wherever a bandage can be used, over dry or moist cotton, and after two or three turns is fixed because of its great adhesiveness. An advantage in fractious animals, not to be lightly passed over. Tying is by no means necessary, the ends adhere without special preparation, simply rubbing over in the palm of the hand is sufficient to secure a firm enclosure.

The durability of this material is quite considerable. After operations on the claws and amputations, I have seen bandages efficient for weeks after application. And in the local dairies the hygienic conditions were quite objectionable since bedding was used very economically and the animals frequently stood in manure and filth. Yet the inner portion of the bandage remained clean and uncontaminated. This is a decided advantage which is of prime importance in panaritium. A suitable dressing after the primal operation will prevent further infection and result in recovery, as has been pointed out by Francke in his tests with Thigenol.

Although this bandage forms an absolute impermeable dressing almost like a rubber shoe, it still does not in any way interfere with the normal healing of wounds. Penetration of air to the tissues is still sufficient to maintain their vitality. By the use of cotton this condition can be controlled at will. Besides in conditions affecting the claws, this bandage is to be recommended also in all diseases and injuries of the hoof. It is of advantage in all cases in which marked and permanent pressure is desirable, especially since the pressure can be regulated at will. After many extensive hoof operations I have never observed prolapse of the soft parts when the bandage has been applied. Especially after the operation for

radiating cancer when a pressure bandage is of the greatest necessity this bandage proved exceedingly serviceable.

In canine practice too, the bandage is very useful. In locations in which permanent dressings are usually impossible, as at the end of the tail and about the joints, this bandage can be readily applied because it adheres so well. Last but not least it must be recommended in the cure of chronic tendon and joint thickening. Its use is indicated wherever formerly water glass and like dressings were used. This bandage adheres on both sides, so by reversing it is readily adapted to all contours forming a fixed, tubular, occlusive dressing. In chronic enlargment of the tendons, gall, etc., the bandage forms a compress dressing of unusual permanency and complying with all possible equirements of such a dressing. The degree of pressure is easily controlled by the operator.

The bandage is furnished in widths of 5 and 6 cm. and 4 metres long, fully sufficient for the average dressing. They can be specially prepared of any length desired. Widths of 2 and 3 cm. are made especially for tendon joint enlargements.

After a trial extending over many years I can recommend the bandage warmly to all practitioners and especially to those who have cases of foot and hoof diseases. It is certain that after a fair trial the bandage will continue to be used because of its great merits and moderate cost.

[The bandage referred to in this article can be secured from Ernst Bischoff & Co., 15 Cedar Street, New York.—Ed.]

REPORT OF CASES.

By H. B. Treman, D. V. M., Rockwell City, Iowa.

Case 1. A small brown mare with a very bad case of fistulous withers. I gave her one Formula A. tablet of H-M-C one hour before operating. The mare struggled a great deal on the table until I gave a few inhalations of chloroform which had to be repeated several times during the operation, which was a very severe one. Patient was drowsy the remainder of the day, not eating anything, but next day did well and is making a fine recovery.

Case 2. A grey, 12-year-old western horse, with a malignant growth of some sort on the penis. I decided upon amputation, and one-and-one-half hours before operating gave one Formula A. H-M-C tablet and one hour later gave one Fomula B. tablet. After confining on the table, and thoroughly disinfecting the parts, the patient struggling fiercely all the while, I gave a few inhalations of chloroform, it only took a few whifs to produce complete anesthesia and although the operation took quite a while the chloroform had to be repeated only once. The results were more than satisfactory. I was much elated though the horse showd symptoms of morphine poisoning for five or six hours after. About six weeks after the operation a slight stricture developed and I wished to insert a tube into the urethra, as the penis was so short I could not hold it. I

gave one Formula A. H-M-C tablet one hour before operating. As before he struggled fiercely until I gave chloroform which had to be repeated several times during the short operation. There seemed to be no relaxation unless chloroform was given. At last he became completely anesthetized and remained so for 45 minutes after the operation; apparently as fine an anesthesia as one could want, the pulse was strong and the respirations fine. As soon as practical patient was removed from table and seemed very much intoxicated. He was walked about the yard a few times when he fell and it was with difficulty that he was made to rise and before we could get him to the stall, he went down once more and again as soon as the stall was reached, where he died one-half hour later without geting up again, in spite of strychnine and other hypodermic heart stimulants.

I am sure that the H-M-C preparation was responsible for the death but just how it was brought about I cannot say as the heart seemed strong to near the last, but there seemed to be a great weakness or paralysis of all the voluntary muscles.

I have used H-M-C in colics several times but failed to get the glorious results reported by some. Also one case of tetanus gave no response to a Formula B. tablet every four hours. On a few bitches I have had very nice results and on others not nearly as good as from morphine alone, followed by a few inhalations of ether.

[We cannot believe that one Formula A. tablet of the H-M-C Compound, containing as it does only 2½ grains of morphine and one-tenth grain of hyoscine could have been responsible for the death of this horse. This can be nowhere near the toxic dose of morphine. It has been stated that the toxic dose of hyoscine for this animal is about one grain. We have no data concerning experiments to determine this. There are so many things other than the anesthetic that might have occasioned death in this case that we should hesitate to place blame on the anesthetic. In justification of the belief that the cause of death in this instance was not due to the anesthetic we ask your consideration of the article on "A Common Case With Very Unusual Complications," by Dr. W. Jakeeman, published last month on page 107. Had Dr. Jakeeman neglected to hold an autopsy the true cause of death here would not have been suspected. A veterinarian in this state was recently sued for the price of a horse that died while he was cutting off a long molar. Although the horse was standing in a stall practically unconfined and his death was unquestionably due to internal hemorrhage, no doubt occasioned by the giving away of the walls of an aneurism, a jury of farmers found against the veterinarian and the plaintiff was rendered judgment for the value of the horse. No autopsy had been held and the veterinarian was without evidence that would, to the lay mind, acquit him. It pays to hold autopsies in circumstances like this one.

It is our belief that the H-M-C Compound should not be used

in horses to produce complete anesthesia; it has given us good satisfaction as a preliminary to chloroform anesthesia. We do not believe it advisable in a small or nervous horse to give more than two of the Formula B. tablets. In our experience with this preparation as an anesthetic for dogs it has been all that we could desire.—Ed.]

CASE REPORT—PATURIENT PARESIS.

By D. O. Knisely, M. D. C., Topeka, Kansas.

Telephone call—"Came as soon as you can, we have a sick cow. She is down and can't get up, has been down about three hours, had a calf two days ago." On arrival, I found the cow down, lying flat on the side, breathing regular, but labored, although the rumen was not distended, in fact cow was very gaunt. Believing it an ordinary case of paturient paresis, I gave at once one-half grain of strychnine, inflated the udder and drew off the urine, which was quite profuse. Left a solution of strychnine, giving one-fourth grain every two hours, with two ounces of whiskey on the interval hour. Told the owner she would probably be up in from four to six hours. Left word to call me in the morning and report. Morning came, and so did the call. It stated they could see no change. I called again and could see no results whatever. The cow lay in the same position. I turned her over at this time, and again drew urine, inflated the udder, and gave one-half grain of strychnine hypodermically. Treatment continued. Called again 4:30 p. m. There had been no improvement that I could see, but rather a change for the worse. Cow at this time bloated. I tapped her and the gas came away well. At no time was there a brightening up of the case. The cow died about twelve that night.

This is the first case I have ever given this treatment that did not respond in some way (not the first to die). I should like to hear from others, and get their opinion as to what the trouble was here.

REGISTRATION OF LIVE STOCK.

Each breed of live stock that is at all numerous in this country has at least one association which furthers the interests of the breed and publishes a series of registers in book form through which any one can find out if the animals they own are pure bred, and various other details about their breeding. The United States Department of Agriculture recognizes 61 different registry associations which issues stud books, herd books and flock books for horses, cattle, sheep and swine. Those officially recognized by the United States Department of Agriculture are the ones in which it is best to have pure bred stock recorded and those purchasing pure bred animals should be sure that they are, or can be, registered in one of these standard live stock associations. Having in view greater service to the breeders and purchasers of pure bred live stock within

the state the Animal Husbandry Department of the Oklahoma Agricultural Experiment Station has equipped its library with copies of all the stud, herd and flock books of most of the standard live stock associations and is now ready to verify the pedigree or investigate the breeding, free of charge, of any pure bred animals for those desiring information along this line. A list of the officially recognized Live Stock Associations with the address of the Secretary of each will, also, be furnished if desired. All inquiries should be addressed to the Oklahoma Agricultural Experiment Station, Stillwater, Oklahoma.—Press Bul. 174.

RESOLUTIONS PASSED BY THE COLORADO VETERINARY MEDICAL ASSOCIOTION AT DENVER, COLO., JUNE 4th, 1910.

WHEREAS, The Bureau of Animal Industry has reached a high state of proficiency, under the guidance of the Secretary of Agriculture and Chief of the Bureau, in Veterinary Sanitary Service; and,

WHEREAS, The present Meat Inspection Service under the Burau of Animal Industry protects the people from the purchase of diseased meat and from fraud and adulteration of other food stuffs entering the channels of interstate commerce; and,

WHEREAS, The Live Stock Quarantine Service under the same Bureau has reached a high state of perfection in the control of contagious diseases among animals and is successfully co-operating in state veterinary supervision in said work; and,

WHEREAS, The value of this work would be greatly curtailed by being placed in a subsidary manner as proposed in the Owens bill, therefore, be it

RESOLVED, That the Colorado Veterinary Medical Association assembled respectfully asks Congress to defeat this bill.

GEO. H. GLOVER,
B. F. KAUPP,
Committee.

AN UNUSUAL DISEASE IN HORSES.

C. A. Curtis, D. V. S., Clovis, New Mexico.

In the November 1909 issue of the BULLETIN, Dr. Hugh S. Maxwell of Amarillo, Texas, gave a very accurate description fo a disease which occurs in this part of the country. As the doctor writes, I have not known the disease in any other portion of the country except here on the plains and in the San Juan valley, which is only about 800 or 900 feet lower than the plains and has a similar climate.

The doctor says he has never known a case in a mule. I have seen one in a burro. The history as given by Dr. Maxwell has been my experience in every case. The following case is typical:

Bay mare, 9 years of age, weight 1000 pounds. Mare was brought to my place June 1st, 1909, for treatment. Mare at that time had

quite an edematous swelling along the inferior part of the abdomen. She was given a brisk cathartic and sent home. She seemed to do well for some time, but at the end of ten days was returned to me. This time there was a large swelling in the region of the prepectoral gland on the left side, also swellings on other portions of the body; the right hock was badly swollen. There was an abscess on the right side, also one on the left side just posterior to the elbow joint. The urine was of a dark red color.

Mare was put on a potassium iodide treatment. Abscesses opened and all healed well except the one posterior to the elbow, which continued to discharge until mare died ten days later.

On the evening of June 19th she had a very severe attack of colic that lasted through the night, mare dying the next morning.

On post-mortem I found the abscess posterior to the elbow to extend to and involve the muscles of the sub-scapular group. There were several small ones along the mesentery, and several on the liver, one large one that discharged as much as a pint of creamy pus when it was cut into, and there were more or less numerous abscesses involving the lymph glands, including the prepectoral, precrural, popliteal, etc. I believe the condition to be of an infectious nature, as several animals in the same pasture are usually affected at the same time. In the San Juan valley there were as many as 100 to 150 cases reported about here last season.

I have several cases of lymphangitis, which I believe to be of the mycotic type, and I am almost persuaded to believe the above condition is of the same order. Have any of the readers of the BULLETIN in this part of the country had any experience with the condition just named?

In the December issue of the BULLETIN, in an article written by myself on the use of mallein, I did not mean to say that mallein will cause a rise of temperature, local swelling, depletion or stiffness in all animals whether sound or not, but I believe it will cause these conditions in many cases where the animals have not glanders.

INTERNATIONAL TUBERCULOSIS COMMISSION.

It seems desirable that the public should be given opportunity to know what the international commission on control of tuberculosis among domestic animals is doing, inasmuch as the commission represents indirectly the Canadian and United States governments, and involves live stock sanitary control work of all work of the individual states.

The last session held at Detroit was devoted largely to reports. There were present representatives of Canadian and American breeders, Canadian and United States Departments of Agriculture, American and Canadian veterinarians. The committee on disposition of tubercular cattle reported concerning the necessity of accepting tuberculin for diagnosis as a fundamental; the necessity of voluntary co-operation; and the superiority of voluntary co-operation

to measures of compulsion. This committee considered the feasibility of the Bang and Ostertag methods of dealing with tubercular herds under American conditions. It also made recommendations concerning the relation of indemnity to final disposition of carcass; the principle of carcass salvage; the obligatory disposal of all clinical cases; and a study of the conditions which should determine the disposition of reacting cattle.

A very considerable amount of discussion on this report was given to the question of remuneration for owners, and particularly as to whether this should be regarded as a temporary or as a permanent provision in tuberculosis control work. A number of members held that it must necessarily be considered as a useful preliminary and temporary measure.

Careful consideration was given to the possibilities of making either the Ostertag or Bang method of dealing with tuberculosis in the herd, or a combination of the two, feasible in America and Canada for grade herds. This is along the line of finding some method more economical than slaughter for as many herds as possible. The next meeting of this international commission will be held in Ottawa.—M. H. Reynolds, in Breeders Gazette.

A PECULIAR FIND IN A FOAL.

By W. O. Longfellow, V. S., M. D. V., Carey, Ohio.

I was called, June 1st, to see a newborn foal that was bleeding profusely at the umbicilus. I found it also had an umbilical hernia, funnel-shaped, extending down 9 or 10 inches and 6 to 8 inches in diameter. The umbilical artery was ligated without difficulty but as it had bled some hours we had a very weak colt. The hernia was not molested and the next day the owner reported the colt lively, and but for the hernia, apparently all right. The following morning however, I had a hurry call to the place and found this colt unable to rise, breathing heavy, and having spasms of pain when it would struggle violently, roll over and strain as if it would burst. At this time the hernia would increase much in size. Nothing that I could do seemed to ease it much and the same evening it died.

On autopsy I found the large colon impacted for 18 inches with a dry-brownish-black-plaster-looking substance (mecomium) mixed with hair. On sectioning this, hair would be left clinging to the knife blade. It plainly showed just how far the milk had gone up on this mass and it did not seem to have softened it any. Now how did this hair get into the colon of a colt only 36 hours old?

Dr. A. F. Schalk of the Bureau fo Animal Industry, who has been stationed at the pathological laboratory in Chicago, has been elected to teach comparative physiology in the veterinary department of the North Dakota Agricultural College. He has already taken up his duties. He will also do experimental work.

COLORADO VETERINARY MEDICAL ASSOCIATION.

The C. V. M. A. held its semi-annual meeting June 4-10 at Denver.

The following members answered roll call: Drs. Chas. G. Lamb, M. J. Woodliffe, C. Wade, Geo. H. Glover, B. K. Kaupp, Robt. H. Bird, Thos. Quinn, Geo. H. Dickey, E. J. Foreman, Jas. Toppin, Fred Gregen and A. G. Brocker. Dr. Vernon J. Ayres was elected to membership.

The following applications for membership were submitted to the Executive Board:

Drs. Walter W. Stewart, Edward H. Aicker, F. D. Hylton, A. G. Wadleigh, Gordon McClain, J. C. Pace, C. Schafer, W. S. Craig and G. C. Shaw.

Drs. Shas. G. Lamb, E. J. Foreman and Geo. A. Glover were appointed by the President to draft amendments to the present veterinary law to strengthen its weak points.

The President appointed Drs. Geo. H. Glover and B. F. Kaupp a committee on resolutions with instructions to draft recolutions voicing the sentiment of the Association in regard to army legislation and to changing the head of the Bureau of Animal Industry. It was the unanimous sentiment of the Association that the veterinary profession should have control of the Bureau of Animal Industry and that the army bill should be passed.

Dr. Geo. H. Glover reported that the Veterinary College of Fort Collins was investigating the diseases of poultry and would be prepared to make a detailed report soon.

Dr. B. F. Kaupp reported several cases of pernicious anemia around Longworth, Fort Collins and Windsor, Colorado.

Dr. E. J. Foreman reported several cases of tetanus in the coal mines of the C. F. & I. Co.

The meeting adjourned to meet in annual session in January, 1911.

M. J. WOODLIFFE, Secretary.

THE HENRY PHIPPS INSTITUTE FOR THE STUDY, PREVENTION AND TREATMENT OF TUBERCULOSIS.

Mr. Henry Phipps of New York has selected the University of Pennsylvania to carry on the work of the Phipps Institute. Mr. Phipps has already acquired ground in Philadelphia on which will be erected a hospital for this purpose. The extent of the benefaction exceeds $5,000,000.

The report of the committee reported to consider the future policy of the institute has been approved by Mr. Phipps and the trustees of the University.

The work will be divided into three general departments, each of which will be presided over by a director. For the Directorship of the Laboratory, Dr. Paul Lewis now of the Rockefeller Institute has been selected. For Directorship of the Sociological Department,

Mr. Alexander M. Wilson of the Boston Association for the Relief and Control of Tuberculosis. Dr. H. R. M. Landis has accepted the appointment as Director of the Clinical Department.

In addition to a board of eight directors who will be directly responsible to the trustees of the University, an advisory council has been created and will meet annually at the institute. The following have accepted the invitation to serve as members of this body: Dr. Samuel G. Dixon, Harrisburg, Pa.; Dr. S. McC. Iindsay, New York City; Dr. William H. Baldwin, Washington, D. C.; Dr. Hermann M. Biggs, New York City; Dr. William H. Welch, Baltimore, Md.; Dr. Theobald Smith, Boston, Mass.; Dr. Gideon Wells, Chicago, Ill.; Dr. Simon Flexner, New York City; Dr. James A. Miller, New York City; Dr. Lawrence Brown, Saranac, N. Y.; Dr. Henry Baird Favell, Chicago, Ill., and Dr. James Pratt, Boston, Mass.

AN INTESTINAL OBSTRUCTION.

By L. J. Herring, B. Sc., D. V. S.
Pathologist and Veterinarian, Georgia Agriculture Experiment Station, Experiment, Ga.

The accompanying photograph shows, full size, a calculus that I took from the intestines of a 16-year-old 750-pound mare.

The latter part of May I was called to see a 16-year-old, 750-pound

mare reported off her feed. I noticed she was not in much pain, but dull. It was manifestly a case of impaction. I used arecoline and warm water enemas, but succeeded in emptying only the rectum

and floating colon. I followed this with slowly acting purgatives, but got no action. The little horse began to show some pain as the days passed, but no bloating. I kept up the slowly acting purgatives, and gave sedatives at times so she could rest some. Cannabis indica was used. I called Dr. G. A. Roberts and J. S. Butler but they had nothing further to offer, agreeing that it was a case of impaction and the only hope lay in slow purgatives and enemas. This treatment was continued for 8 days when I purposely increased the cannabis indica to such an extent that it took the pony quietly away.

An autopsy was held at which the doctors above mentioned were present and for a time it looked as though we were not going to find any impaction, but just as we were above to leave, after having opened the intestinal tract back to the floating colon, and having in mind that I had many times passed the hose 6 to 8 feet up the rectum we were sure we would find nothing mor than some congested bowels. As a last resort I began at the posterior end of the floating colon, opening it forward, until I found the hard calcareous object shown in the cut. It looked very much like coal cinders accumulated in a ball with somewhat smoothed around the edges to keep them from injuring the intestines. It had one or two holes through it, which allowed gas to pass out. The irregular ball looked as though it had been forming many years in the large colon and by peristaltic movements had been forced into the floating colon, which constricted on both sides of it and by no means could it be moved. The hole through the ball prevented bloating and allowed the pony to live longer than she otherwise would have done and also to suffer less.

Dr. M. J. Moodliffee of Denver, Colo., is just recovering from a severe attack of blood poisoning in the right arm.

Dr. and Mrs. R. C. Moore of Kansas City have been having a splendid time during a month's vacation spent on the beautiful White river, way down in the Ozarks of Southwest Missouri.

The Kansas Veterinary Medical Association will not hold a midsummer meeting at Fort Riley, July 19th and 20th, as announced last month. It was unanimously voted to hold this meeting by about 40 members of the Kansas Association at a little informal gathering at Kansas City during the Missouri Valley meeting. The request for the summer meeting was signed by the requisite number of members of the Association and the call for the meeting issued as provided by the constitution of the Association. The Secretary of the Association for reasons of his own did not want the mdisummer meeting and immediately after the call for it was issued he set about endeavoring to prevent it. Using Association funds and Association postage to do so. In defeating the expressed wish of the Association the Secretary was abetted by the President of the Association.

Fowl Tip—Prof. Kaupp is Making a Scientific Investigation of Chicken Diseases in Colorado

(From Fort Collins, Colorado Evening Courier) [Comments Unnecessary - Ed.]

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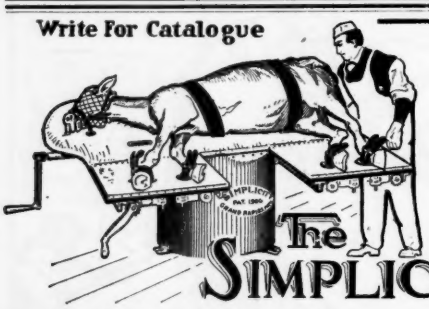

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